

# NUMERACY POLICY

## **Rationale**

Literacy and numeracy are among the most important life skills that our schools teach. No child should leave school without having mastered these skills to the best of their abilities. Literacy and numeracy skills are crucial to a person's ability to develop fully as an individual, to live a satisfying and rewarding life and to participate fully in our society. Ensuring that all young people acquire these skills is one of the greatest contributions that we can make to achieving social justice and equity in our country.

Ruairí Quinn, TD

Former Minister for Education and Skills

## **OR**

*( Literacy and numeracy are among the most important skills taught in our schools. They are fundamental to a person's ability to succeed in education, to gain fulfilling employment and to lead a satisfying and rewarding life. Advances in communication systems demand ever-increasing competence in literacy and numeracy and emphasise the important roles that schools, teachers and parents play in fully developing these skills.*

*Department of Education & Skills Circular No. 0025/2012)*

In Dungarvan CBS we are committed to raising the standards of Numeracy of all our students, so that they develop the ability to use numeracy skills in all areas of the curriculum and the skills necessary to cope confidently with the demands of further education, employment and adult life.

It is important that all pupils develop the ability to apply numerical understanding and skills confidently to solve problems in a variety of curriculum contexts and to cope with practical mathematical demands of everyday life.

The focus on numeracy skills is not just the responsibility of the Mathematics Department. All subjects where pupils are expected to apply numerical skills should be taking positive steps to develop pupils' Numeracy skills and concepts and provide opportunities for them to acquire the mathematical language crucial to understanding mathematical knowledge.

## **Definition**

*Numeracy is not limited to the ability to use numbers, to add, subtract, multiply and divide. Numeracy encompasses the ability to use mathematical understanding and skills to solve problems and meet the demands of day-to-day living in complex social settings. To have this ability, a young person needs to be able to think and communicate quantitatively, to make sense of data, to have a spatial awareness, to understand patterns and sequences, and to recognise situations where mathematical reasoning can be applied to solve problems.*

## Literacy and Numeracy for Learning and Life.

Numeracy includes but is not limited to:

- The ability to carry out basic calculations efficiently and accurately, either mentally or with pencil and paper as appropriate.
- The ability to apply numeracy skills to both familiar and new circumstances and to use them in the solution of problems.
- The ability to understand and use units of measurement of length, mass, capacity and time.
- The ability to understand and use information presented in mathematical forms, including graphs, tables and charts.

Numerate students:

- Have a sense of the size of a number and where it fits into the number system.
- Read numbers correctly from a range of meters, dials and scales.
- Know basic number facts and recall them quickly and confidently.
- Use calculators and other ICT resources appropriately and effectively to solve mathematical problems.
- Make sense of number problems, recognise the operation(s) needed and are able to work confidently with numbers.
- Know when answers are reasonable and give results to an appropriate degree of accuracy.
- Are able to manipulate algebraic expressions and simple formulae.
- Understand and use correct mathematical notation and terminology.
- Are able to explain methods, reasoning and conclusions.
- Use units of measurement of length, angle, mass, capacity and time; can suggest suitable units for measuring, make sensible estimates of measurements and measure accurately using a range of instruments.
- Understand and use compound measures and rates.
- Use simple relevant formulae to solve problems.
- Measure and estimate measurements, choose suitable units and calculate simple perimeters, areas and volumes.
- Draw plane figures to given specifications and appreciate the concept of scale in geometrical drawings and maps.
- Understand the difference between the mean, median and mode and the purpose for which each is used.
- Collect discrete and continuous data, and draw, interpret and predict from graphs, diagrams, charts and tables.
- Understand probability and risk.

## **Raising Standards of Numeracy**

The promotion of an integrated, whole-school approach to numeracy is critical at post-primary level. The Strategy provides that *“Literacy and numeracy activity can become contextualised, meaningful and purposeful to the learner through many subjects and areas of learning.”* In that context, strengthening skills in this area is a task for **all** teachers, not just teachers of mathematics.

A whole school strategy for raising standards of numeracy involves:

- Identifying the numeracy needs of different subjects.
- Providing information on appropriate expectations of particular groups.
- Increasing teacher awareness of how students are taught particular skills in mathematics lessons, so that students can be encouraged to utilise these skills in various subjects.
- Increasing teacher awareness of differences that exist, in similar topics, between mathematics and other subjects, so that these differences can be explained to pupils to aid understanding.
- Increasing the awareness of pupils of the transferability of skills, so that they can make effective use of these in a range of contexts.

It is the responsibility of the Mathematics Department to teach basic skills, but by working more effectively with other teachers in the school standards should be raised for all students.

This should mean that:

- The need for teachers of subjects other than mathematics to teach basic numeracy skills will be reduced.
- Achievement in those aspects of the curriculum, which involves the use of basic numeracy skills, will be raised.
- The ability of all students to work correctly and confidently with mathematics in a variety of contexts will improve.
- Students leaving the school will be better prepared for further education and employment and able to deal more confidently with the mathematical demands of adult life.

## **Numeracy Committee**

A Numeracy Committee will be established within the school staff. This group will be responsible for co-ordinating the development and implementation of a whole school

approach to numeracy development – encompassing professional development for teachers, short-term interventions and a school-wide enrichment policy. This group will comprise the following:

- Numeracy co-ordinator(s) preferably a member of the Mathematics Department.
- Learning support representative.
- Management representative.

### **Our Aims: 2014-2016**

#### First year Screening

All incoming first years are assessed in the areas of numeracy and literacy using a combination of different standardised tests.

Based on these tests we aim to:

- Implement a targeted intervention programme for students whose screening tests indicate the presence of numeracy difficulties.
- Inform teachers of all subjects of any learning issues which may arise in their subject due to these numeracy difficulties and advise on how best to overcome these issues.

Establish a co-ordinated approach to teaching numeracy skills across the curriculum

This will involve:

- Each subject department identifying the numeracy skills and concepts relevant to their subject.
- Co-ordination with the Mathematics Department on when and how these skills and concepts are taught in order to allow students to confidently and competently utilise these in other subject areas.
- Focusing on the language of mathematics as it arises in all areas of the curriculum and encouraging the use of a mathematics glossary and word banks to ensure that language and concepts are clearly explained.

#### Awareness Raising:

Students should be encouraged to realise when and where they use their numeracy skills.

This will involve:

- Posters being used around the school and in classrooms identifying the myriad places that students use their numeracy skills.
- Empowering parents to get involved in their child's numeracy development by actively encouraging the student to use their numeracy skills at every opportunity. Identifying for parents how easily they can achieve this.
- Regular Puzzle competitions to encourage logical thinking and develop problem solving skills in a fun way. These puzzles should, where possible, be tailored to relate directly or indirectly to topics covered across the curriculum.

### **Special Educational Needs:**

The Learning Support Co-ordinator will liaise with staff members so that the needs of students with numeracy challenges can be best met. Staff members will also liaise with Special Needs Assistants (SNAs) in order to facilitate positive learning outcomes for the specific students they assist.

### **Monitoring and Evaluation**

This policy and the school's efforts to improve standards of Numeracy will be monitored in 2016 and evaluated by the Numeracy Team. This team will liaise with each subject department to evaluate the progress being made and identify any further issues needing to be addressed. In order to facilitate this each subject department will need to clearly define what numeracy skills are required in their area and assess these skills in a relevant manner.

## **DEVELOPING NUMERACY ACROSS THE CURRICULUM**

Learners can develop their numeracy skills across the curriculum by using mathematical information, calculating, interpreting and presenting results.

The following defines the contribution of the subjects (excluding mathematics) to the development of numeracy across the curriculum:

### **ART**

Apply number skills such as measurement, estimates, scale, proportion, pattern and shapes to develop, inform and resource their creative activities.

### **GEOGRAPHY**

Apply number skills in the classroom and in fieldwork to measure, gather, present and analyse data. They use mathematical information to understand direction, distances and scale and to determine locations when using plans, maps and globes.

### **HISTORY**

Develop their number skills through developing chronological awareness, using conventions relating to time, and making use of data, *e.g. census returns and statistics*.

## **INFORMATION TECHNOLOGY**

Use mathematical information and data presented numerically and graphically in data-handling software. They use number to collect and enter data for interpretation in spreadsheets and present their findings as graphs and charts, checking accuracy before processing.

## **TECHNOLOGY**

Use mathematical information and data, presented numerically and graphically, to research and develop their ideas. They use their numeracy skills to measure and calculate sizes, fits and materials.

## **SCIENCE**

Work quantitatively to estimate and measure using non-standard and then standard measures, recording the latter with appropriate S.I. units. They use tables, charts and graphs to record and present information. With increasing maturity they draw lines of best fit on line graphs, use some quantitative definitions and perform scientific calculations.

## **LANGUAGES**

Develop number skills through a range of activities in the target language. These can include ordering numbers; ordering events in time; gathering information in a variety of ways, including questionnaires and recording and presenting results in a variety of formats.

## **RELIGIOUS EDUCATION**

Develop skills in the application of numeracy skills by using information such as ordering events in time, by measuring time through the calendars of various religions and by considering the significance of number within religions. They interpret results/data and present findings from questionnaires, graphs and other forms of data in order to draw conclusions and ask further questions about issues relating to religion and the world.

## **PHYSICAL EDUCATION**

Develop their number skills by using mathematical information and data. They measure and record performances, *e.g. time, distance and height*, and use the data to set targets and improve their performance.

## **ENGLISH**

Develop skills in the application of numeracy skills through activities which include ordering events in time, gathering information in a variety of ways, including questionnaires; accessing, selecting, recording and presenting data in a variety of formats.

## **CSPE**

Select data from given information presented in a range of numerical and graphical ways. Gather information in a variety of ways, including simple questionnaires or

databases to support understanding of CSPE-related issues; recording and presenting results in a variety of formats.